

CLAIMS

1. A per flow used control method for regulating the flow of data between a transmitting radio network node (4) and a receiving radio network node (6) in a radio transmission network, wherein

5 -the transmitting node sends a capacity request (10) to the receiving node requesting the receiving node for permission to send an indicated number of data units that are pending in the transmitting node, and that the receiving node in response to the capacity request sends an allocation frame (11) to the transmitting node, said allocation frame indicating the number of data units the transmitting node is given permission to transmit, this latter number being
10 referred to as credits, **characterized by** the receiving node performing the following steps for a data flow (12) between the transmitting and receiving nodes in case buffer resources (9) for storing of data units at the receiving are scarce:

- counting the instantaneous number of requested data units,
- computing the number of credits to be granted by subtracting from a target buffer filling
15 level
 - the number of data units currently stored in the buffer, and
 - the number of credits previously given but not yet received, these credits below referred to as outstanding credits,
- inserting the number of granted credits so computed in an allocation frame (10) for
20 transmission to the transmitting node in response to the capacity request.

2. A per flow used control method in accordance with claim 1, **characterized by** comparing the number of data units currently stored in the buffer with the number of requested data units, selecting the smaller one of these numbers as a potential number of granted credits from which the number of outstanding credits is subtracted in order to obtain the number of granted
25 credits.

3. A per flow used control method in accordance with claim 2, **characterized by** the receiving node keeping a running count of the number of outstanding credits, this being achieved

- by increasing the count each time an allocation frame is sent, said count being increased
30 with the number of granted credits indicated in the allocation frames, and
- decreasing said count each time data units are received, said count being decreased with the number of received data units.

4. A per node used control method for regulating the flow of data between a transmitting radio network node (4) and a receiving radio network node (6) in a radio transmission network, wherein the transmitting node sends a capacity request (10) to the receiving node requesting the receiving node for permission to send an indicated number of data units that are pending in the transmitting node, and that the receiving node in response to the capacity request sends an allocation frame (11) to the transmitting node, said allocation frame indicating the number of data units the transmitting node is given permission to transmit, this latter number being referred to as credits, **characterized by** the receiving node performing the following steps for each data flow (12) between the transmitting and receiving nodes in case buffer resources (9) for storing of data units at the receiving are scarce:
- counting the instantaneous number of requested data units in each data flow to obtain a total number of requested data units,
 - computing the total number of credits to be granted in each data flow by subtracting from a target buffer filling level for the total number of data flows
 - the total number of data units currently stored in each of the buffers, and
 - the total number of credits previously given but not yet received, and
 - distributing the total amount of credits of the receiving node proportionally to the radio channel qualities (28) indicated by the respective user entities (7).
5. A per flow used control process in accordance with claim 4, **characterized by** limiting the total sum of user data in all data streams to a desired value less than or equal to the total requested number of data units.
6. A per node used control method for regulating the flow of data between a transmitting radio network node (4) and a receiving radio network node (6) in a radio transmission network, wherein
- the transmitting node sends a capacity request (10) to the receiving node requesting the receiving node for permission to send an indicated number of data units that are pending in the transmitting node, and that the receiving node in response to the capacity request sends an allocation frame (11) to the transmitting node, said allocation frame indicating the number of data units the transmitting node is given permission to transmit, this latter number being referred to as credits, **characterized by** distributing the number of credits given by the receiving node proportionally to the radio channel qualities (28) indicated by the respective user entities (7) to which the receiving node is scheduling radio transmission of data units.

7. A receiving radio network node (6) for regulating the flow of data from a transmitting node (4), comprising a buffering resource (9), a capacity allocation device (23) for allocating individual amounts of user data to individual user entities (6), a flow control protocol and a scheduler (16) **characterized in that** the capacity allocation device (23) comprises a counter (29) for keeping a running count of the instantaneous number of outstanding credits, outstanding credits being defined as the number of data units that the allocation device has permitted the transmitting node (4) to send, although the corresponding number of data units has not yet arrived at the receiving node (6).
8. A receiving radio network node in accordance with claim 7, **characterized in that** the capacity allocation device comprises a counter for keeping a running count of user data pending in the transmitting node.
9. A receiving radio network node in accordance with claim 7 or 8, **characterized by** a distribution device adapted to distribute the total number of credits given by the receiving node proportionally to the radio channel qualities (28) indicated by the respective user entities (7) to which the scheduler (16) is scheduling radio transmission of data units.